

PATENT SPECIFICATION



739,284

Date of Application and filing Complete

Specification : April 16, 1953.

No. 10472153.

Application made in Germany on May 8, 1952.

Complete Specification Published : Oct. 26, 1955.

Index at acceptance:—Class 146(3), A11A, A11D(1:2), A11G.

COMPLETE SPECIFICATION

Improvements in Fountain Pens

I, CARL JOSEF LAMY, of Bergstrasse 118, Heidelberg, Germany, a German citizen, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to fountain pens, wherein ink storage chambers run axially parallel to a feed-bar, and wherein the feed-bar is contained in a nib section.

The object of the invention consists in forming the pen so that the ink flows particularly evenly and in a more dependable way than in previously known forms where the storage chambers run parallel and axially to the feed-bar. In known fountain pens with axially parallel storage chambers according to both the state of the temperature and the atmospheric pressure, an undesired overflowing of the chambers could easily ensue whereby the even flow of ink is disturbed.

According to the invention, I provide a fountain pen wherein ink storage chambers are arranged within a nib section at the head of the barrel and axially parallel to a feed-bar, the said storage chambers at their rear portion being connected to an air-duct and a nib is mounted in the front part of the nib section so as to be concealed except for the writing tip of the nib, characterised in that the storage chambers are arranged in the nib section behind the rear end of the nib.

Further, according to the present invention, a capillary connection is provided between the storage chambers and the ink channel, said connection being provided in the feed-bar. It is advantageous, having regard to capillary action, to make the storage chambers of greater depth at the rear than at the front. So as to avoid an undesired trickling of the ink and condensation inside the cap, a deflection plate

can be arranged in the feed-bar in front of the forward discharge end of the air-vent of the feed-bar. The securing of the feed-bar in the head of the barrel can be made by means of the nib section containing it, the said nib section being supported by an inside ledge on a corresponding ledge of the feed-bar. Between the feed-bar and the head of the barrel there can also be provided a resilient sealing-ring which effects not only a dependable closure, but also ensures between certain working tolerances a secure seating of the feed-bar and a sealing of the nib section in which the feed-bar is located. The nib section can also be provided on the inside with projecting shoulders on which the longitudinal edges of the nib are supported so that the nib, which is only pushed into the nib section, is positively prevented from twisting.

Some examples of the invention are shown in the drawings wherein:—

Fig. 1 is a longitudinal section through the nib section and the feed-bar:

Fig. 2 is a transverse section taken along line II—II of Fig. 1;

Fig. 3 is a top view of the feed-bar;

Fig. 4 is a transverse section taken along line IV—IV of Fig. 3;

Fig. 5 shows a top view of a modified form of feed-bar;

Fig. 6 is a side view of the feed-bar shown in Fig. 5;

Fig. 7 is a section taken along line VII—VII of Fig. 6;

Fig. 8 is a section taken along line VIII—VIII of Fig. 6;

Fig. 9 is a section taken along line IX—IX of Fig. 6; and

Fig. 10 is a section taken along line X—X of Fig. 1.

Referring to the drawings, the head 1 of the barrel has a central bore 2 adapted in the known manner for receiving the 90

[Price 3/-]

feed-bar 3. The feed-bar 3 is slid into the bore 2 and a shoulder 4 thereon bears on a resilient sealing-ring 5 arranged between the head 1 and the said feed-bar. A nib section 6 is placed over the feed-bar 3, the nib section having at its forward part a small shoulder 7 which abuts a corresponding shoulder on the feed-bar 3 when the nib section 6 is screwed on to the head 1, whereby the feed-bar 3 is secured to the head 1. The resilient sealing-ring 5 thus has the double function of providing a secure seating for the feed-bar 3 and a closure for the rear end of the nib section 6 at the head 1.

The feed-bar 3 is provided in a known manner on its upper side with one or two capillary channels 8 for the ink and with an air-duct 9. Underneath the feed-bar 3 there is further arranged an air-duct 10 at the rear end of which the feed-bar is provided with a connecting channel 11. Laterally joined to this connecting channel 11 are channels 11a built into the feed-bar 3. Around the feed-bar 3, except for the area of the capillary channel 8 and the air-vents 9, 10, there are arranged storage chambers 12 for the reception of superfluous ink. These storage chambers 12 can, as shown in Fig. 1, be formed in the nib section 6, by injection or other moulding pressing or the like. These chambers 12 are connected to the outside air through the channels 11a, 11 and 10. In the form illustrated there is provided in the forward part of the feed-bar a capillary connection 13 consisting of three annular grooves; the separate storage chambers 12 are connected only by the grooves 13 to the capillary channel 8 of the feed-bar 3 and can be fed from it. It is specially advantageous (as can be seen from Fig. 1) to make the storage chambers 12 greater in depth at their rear ends than at the front whereby the capillary action increases rearwardly so that the ink can mount rearwardly into the chambers 12 when the barrel is held in use.

The grooves 13 may be arranged in such a way that they are in communication with the air-duct 10 at the under side of the feed-bar 3. The air-feed into the ink-container takes place through the air-duct 10, the grooves 13 and the air-duct 9.

To avoid an undesired flooding of the ink through the forward opening 14 in the nib section 6, in case the pen is put away carelessly, and in order to reduce as far as possible the formation of condensation in the cap (not shown) it is advantageous to arrange in front of the forward discharge place of the air-duct 10 in the feed-bar 3 a deflection plate 15. Any ink in a forward position from the channel 10 is now forced to mount from the under side

of feed-bar 3 to the upper side of the feed-bar, so that flooding cannot take place, on the other hand air can at any time enter the air-duct 10 by the opening 14 (see Fig. 1) and by the corresponding grooves 16, 17 and 18 of the feed-bar 3. The deflection plate 15 further avoids an undesired drying up of the storage chambers 12 when the pen is left lying for any length of time. The detailed position of grooves 16, 17 and 18 is shown in the relevant sectional illustrations of Figs. 7, 8 and 9.

Advantageously a transverse channel 19 is arranged at the forward end of capillary channel 8 in the ink-duct 3. This allows both an even distribution of the ink at the nib 20 and an easier suction of the ink when filling the pen. Furthermore this channel 19 ensures a specially good contact between the feed-bar and the point of the nib 20, even in cases where the nib is slightly bent at the point. The nib itself is only pushed into the forward end of the nib section 6 and its longitudinal edges are supported on ledges 21 (Fig. 10) so that an unintentional twisting of the nib is positively prevented.

What I claim is:—

1. Fountain pen wherein ink storage chambers are arranged within a nib section at the head of the barrel and axially parallel to a feed-bar, the said storage chambers at their rear portion being connected to an air-duct and a nib is mounted in the front part of the nib section so as to be concealed except for the writing tip of the nib, characterised in that the storage chambers are arranged in the nib section behind the rear end of the nib.

2. Fountain pen according to Claim 1, wherein a capillary connection is provided between the storage chambers and the ink channel, said connection being provided in the feed-bar.

3. Fountain pen according to Claims 1 and 2, characterised in that the feed-bar is secured in the head of the barrel by means of the nib section, the front part of which is provided with a shoulder which bears on a corresponding shoulder on the feed-bar.

4. Fountain pen according to any one of Claims 1 to 3, wherein a resilient sealing-ring is arranged between the head of the barrel and the feed-bar.

5. Fountain pen according to any one of Claims 1 to 4, characterised in that the storage chambers are of greater depth at their rear parts than at their forward parts and wherein the longitudinal edges of the nib are supported by inwardly projecting shoulders provided on the nib section.

6. Fountain pen according to any one of Claims 1 to 5, characterised in that the

storage chambers are formed in the nib section by injection or other moulding, pressing or the like.

7. Fountain pen according to any one of Claims 1 to 6, characterised in that a deflection plate is arranged in front of the forward discharge place of the air-duct in the feed-bar on that side opposite to the

nib.
8. Fountain pen incorporating the parts substantially as described and illustrated in Figs. 1-4 and 10 or Figs. 5-9 of the accompanying drawings.

MEWBURN ELLIS & CO.,
70 & 72, Chancery Lane, London, W.C. 2,
Chartered Patent Agents.

Printed for Her Majesty's Stationery Office by Wickes & Andrews, Ltd., E.C.4. 684/2.—1955.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained

Fig. 1

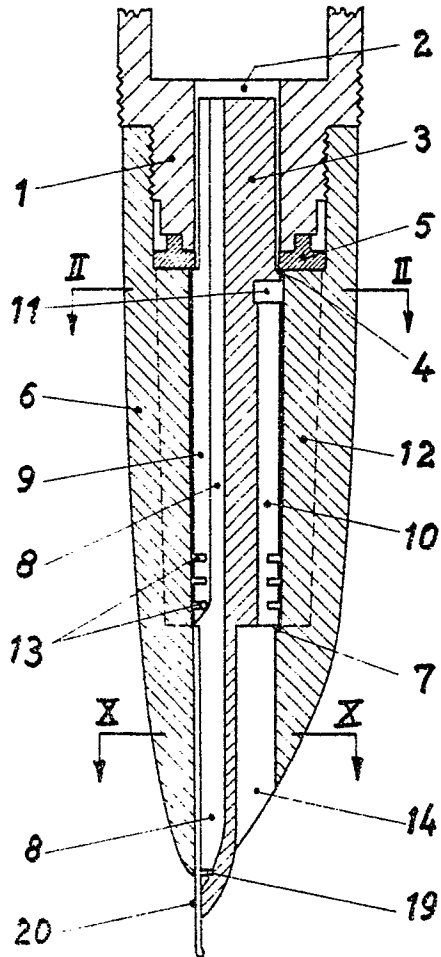


Fig. 2

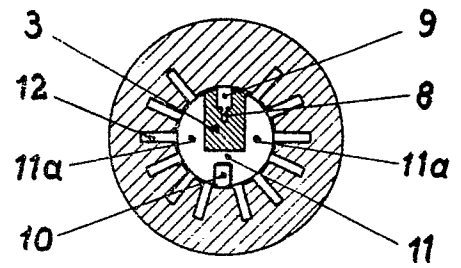


Fig. 3

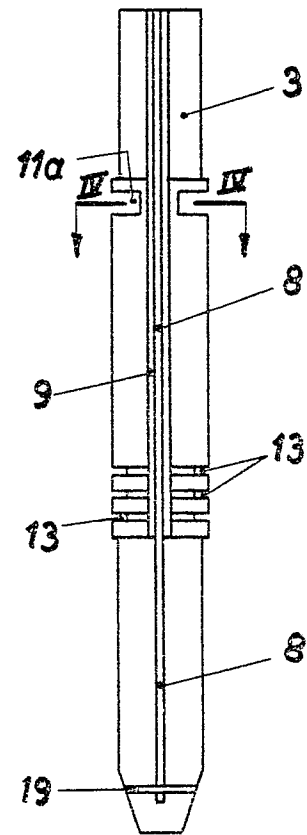


Fig. 4

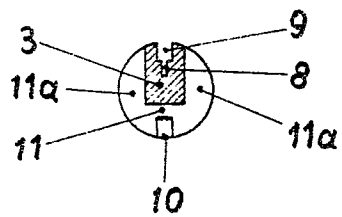


Fig. 5

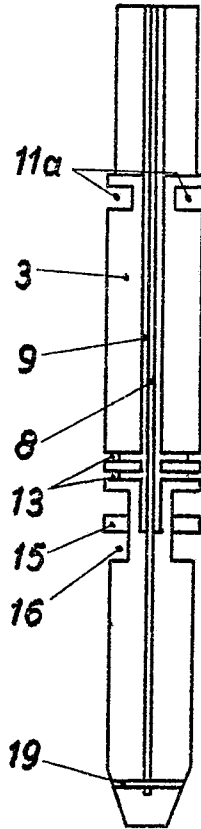


Fig. 6

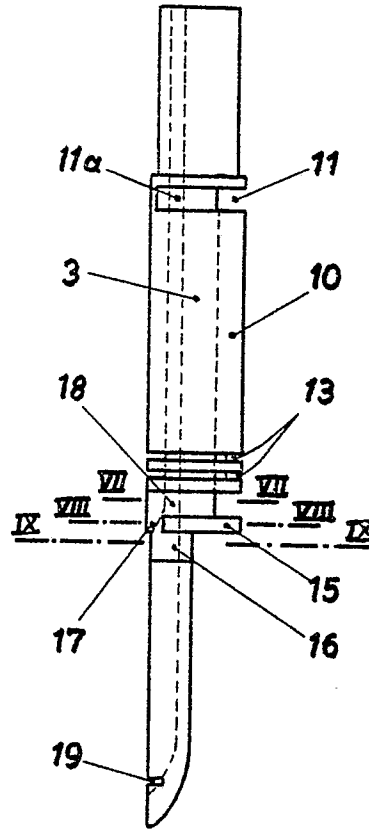


Fig. 7

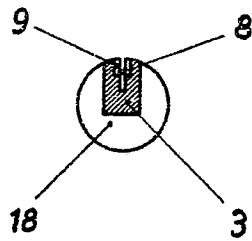


Fig. 8

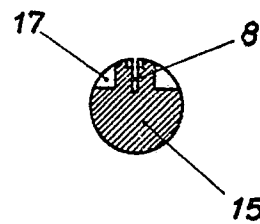


Fig. 9

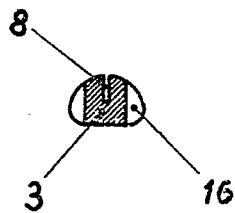
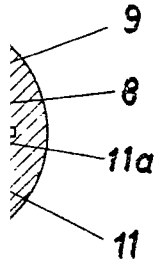
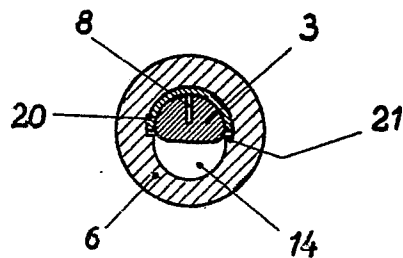


Fig. 10



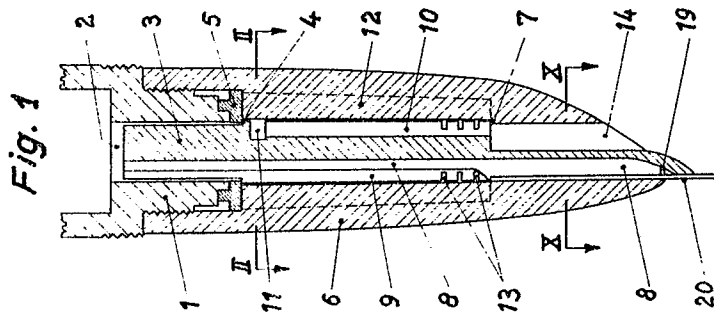


Fig. 2

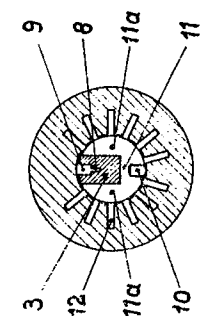


Fig. 3

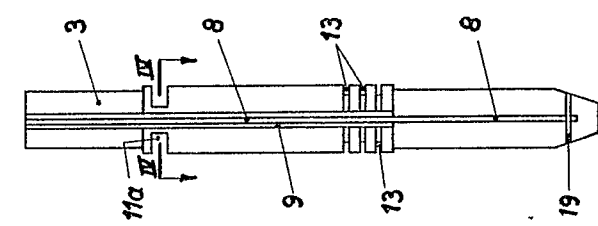


Fig. 5

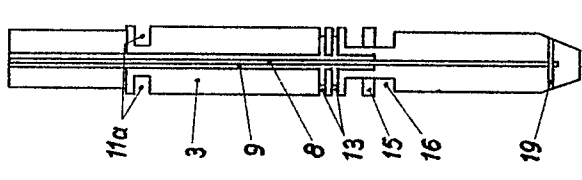


Fig. 6

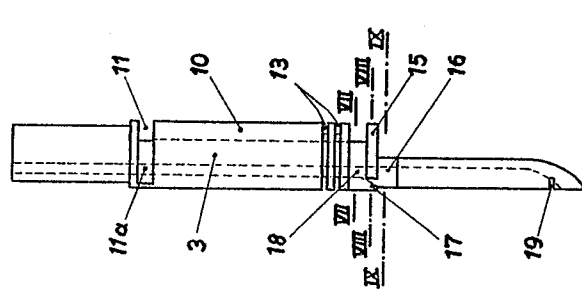


Fig. 7

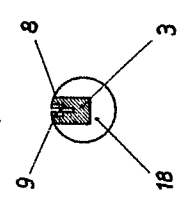


Fig. 8

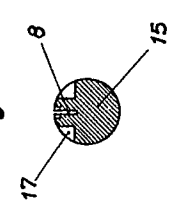


Fig. 4

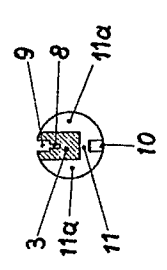


Fig. 9

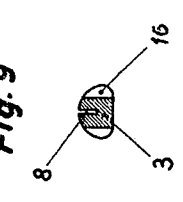


Fig. 10

